

POPULATION PROJECTIONS FOR THE BAY AREA & THEIR IMPACT ON SEWERAGE CONSTRUCTION GRANTS

**A SUMMARY OF A PANEL DISCUSSION BEFORE THE
TECHNICAL ADVISORY COMMITTEE AUGUST 15, 1973**



November 1973

**Bay Area Sewage Services Agency
Hotel Claremont, Berkeley 94705**

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BAY AREA SEWAGE SERVICES AGENCY

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INTRODUCTION

The Bay Area Sewage Services Agency (BASSA) is the regional agency responsible for regional water quality management within the nine counties of the San Francisco Bay Area. BASSA is governed by a 21-member Board of Trustees, whose members are appointed by each county. The Trustees are all elected officials of local public agencies which have responsibility for water quality control facilities. The Board is assisted by a technical and administrative staff and a Technical Advisory Committee which makes recommendations on regional water quality management matters.

In order to acquaint local agencies with the implications of population projections as they relate to grants for construction of sewage treatment facilities, BASSA arranged a panel discussion on the subject before the Technical Advisory Committee. Participants were representatives of the Association of Bay Area Governments (ABAG) and the State Water Resources Control Board. These two agencies are responsible for developing and applying population projections which are used to determine the amount of grant money available to local dischargers.

The purpose of the panel discussion was to inform those present and to make local policy makers aware of the importance of population projections to the amount of construction grant money which is available to their agencies. Because of limited federal and state grant funds and efforts by the Environmental Protection Agency to limit growth in "critical air basins", population projections are being used to set ceilings on sewerage grant monies. Although these projections are being used to limit grant funds, local input in the projection process has been minimal. However, future sets of projections will rely more heavily on local input. ABAG, which has a key responsibility for developing these projections and applying them to grant applications, has adopted the following statement of intent:

"Decisions concerning portions of regional growth in the component parts of the Bay Area shall be determined in a cooperative effort with local and regional level governmental agencies. Each community will be encouraged and supported in its efforts to formulate an explicit growth policy. These local growth policies should be developed by each community in concert with county and related governmental units. ABAG will provide staff support and technical assistance to counties and communities in helping them determine appropriate levels of population, jobs, related land use, rates of growth, and appropriate means of managing growth consistent with regional growth guidelines."¹

In order for this local input to be both rational and meaningful, the local communities must know how the projections are developed and how they are applied. Uncertainty and confusion exists among local officials as to the intent and implications of various sets of population projections. The importance of a clear understanding of the role of population projections in the basin planning and grant programs cannot be underestimated, since these projections can play a significant role in constraining local policy decisions.

The panel discussion was arranged by BASSA to assist local communities to become aware of the development and importance of these projections. This document is a summary of the panel discussion. It was prepared and is being given wide distribution among interested agencies to disseminate the information developed.

The panel members were Rudy Platzek, John Holtzclaw and Waide Egner from the Association of Bay Area Governments and Jim Giannopoulos, Gary Morris and George Billingsley from the State Water Resources Control Board.

This summary was prepared by Don Hemovich, Associate Water Quality Engineer, BASSA staff.

1. ABAG Policy Statement, "Formulation of Long Range Regional Growth Policy-II", adopted by General Assembly, October 11, 1973.

Rudy Platzek, Association of Bay Area Governments

In the past, population projections were a technical effort frequently skipped over lightly in the planning process. Obtaining technical projections didn't require policy considerations; growth was market-oriented, growth was good. All planners had to do was to extrapolate a curve from a particular date into the future and no one really gave it much serious thought. That day is gone. Today, population projections cannot be skipped over lightly. Some communities and citizen groups have made it a policy matter to question population projections which indicate growth.

The work that has been done so far by ABAG is the first stage in a regional process to develop growth policy for the entire San Francisco Bay Region. Earlier computer models projected historical trends. Those projections did not reflect policy constraints. Growth was allocated throughout the region without consideration of a regional land use plan. The new projections that have been developed for the State Water Resources Control Board's use are based on land use constraints in ABAG's Regional Plan.

In September of 1971, ABAG contracted with the State Water Resources Control Board to develop population, employment and land use projections for the basin planning program. Shortly thereafter, a joint effort was undertaken by ABAG, the Metropolitan Transportation Commission (MTC) and the Division of Highways to utilize computer modeling with updated data which reflected recent trends. The model was run in late 1972, and a report on this Series 1 output was delivered to the State Board in February of 1973. Although these are the first projections for the Bay Area that reflect the land constraints from a regional land use plan, the policy considerations were fairly limited. It is, however, possible to test other policy implications which could result in different population growth configurations in

the Bay Area. In fact, ABAG is undertaking an ongoing effort to improve these projections by interjecting new policy considerations into them. A Series 2 set of projections has been developed and is under evaluation.² Based on Series 2, a "region-wide liaison program" with the local and regional agencies of the Bay Area will be initiated to adjust the projections for local sensitivities and aspirations. This process is schematically presented in Appendix I (Figure 1).

John Holtzclaw, Association of Bay Area Governments

Initially, ABAG and MTC obtained regional nine-county totals for both the high D-150³ and low E-0⁴ levels of population projections from the State Department of Finance and employment figures from the Federal Department of Commerce up to the year 2000. Using these as regional constraints, ABAG apportioned employment projections to each county to the year 2000 based on past growth trends. After some adjustment of those numbers, a reasonable set of projections for each county for each of twelve basic employment categories was developed. A Basic Employment Model was then utilized to take each county's share of each of the industries and, considering such factors as employment density, land availability, proximity to long-distance transportation (water and rail) and flatland, it projected the location of each of the twelve basic employment categories to zones within each county,

The model allocated housing and local service employment based on the industry employment, location, available land and commuting times. A simplifying assumption was used in Series 1 because the Metropolitan Transportation Commission had not yet developed traffic networks for commuting during rush-hour. Accordingly, a completely

2. See Appendix II-Table 1.

3. D-150 signifies a fertility rate of 2.45 children per woman and a net in-migration to the State of 150,000 persons per year.

4. E-0 signifies a fertility rate of 2.11 and a net in-migration of zero to the State but with some migration into the region.

"free-flow" traffic situation over the whole transportation system in the region was used. That simplifying assumption meant that commuters could travel farther to work. Consequently, many residences in Series 1 were located further from the employment area than reality would dictate.

Another simplifying assumption was used due to a lack of accurate estimates of the changes in housing density over time. The new residential density in each zone was assumed to remain about what it was in 1965. That meant that, since the dense areas were saturated and most of the additional residences went into the lower density areas, more land was used than was reasonable. For Series 2, ABAG developed a regression equation which predicted the densification of new residences. As a zone approached saturation, the remaining land was more likely to be used for apartment and other higher density uses. In Series 2, by including densification, only about one third as much new land was used.

There is a difference between Series 1 and Series 2 for the E-0 low growth rate. In Series 1, the 1970 to 1980 high (D-150) growth rate was used for the whole region; then after 1980, growth at the low (E-0) growth rate was used. This resulted in higher regional populations for the low (E-0) projection than the Department of Finance projections for the region from the beginning in 1970. For Series 2, the lower E-0 was used from 1970 to 2000, which is reasonable because the region has been growing at the E-0 rate since 1970.

A significant difference exists in how the projections were developed by ABAG/MTC and the Department of Finance. The Department of Finance uses existing conditions (trends in migration, fertility rates) as factors for projection. ABAG considers where employment will be located, the land availability for growth and ease of commuting from residential locations to employment. In Series 2, ABAG used "residential attractiveness multipliers" to indicate the residential attractiveness in each zone.

For some zones, which for one reason or another should not be attracting residences, low multipliers were used to keep growth down. For other areas with high growth aspirations, multipliers were used to indicate increased attractiveness.

Waide Egner, Association of Bay Area Governments

The Association of Bay Area Governments has the authority to review applications for federal assistance under the Federal Office of Management and Budget Circular A-95. ABAG advises federal funding agencies concerning the extent to which project and requested funding support regional planning objectives. The review comments are advisory to federal agencies and do not constitute a veto. ABAG also comments to state agencies when those state agencies administer federal programs. One example of this is the State Water Resources Control Board, which administers the Construction Grants Program for water pollution control facilities. ABAG considers the impacts of proposed projects on land use development in an area. Impacts are considered not only in terms of population increases to service areas but the probable location of population. Another aspect of ABAG involvement lies in working with the State Board's Grant Administration Department in the application of population projections. This is a technical process which includes adjusting projections to different time increments or modifying projections, developed for the county level, to particular service areas.

There are two technical problems associated with these adjustments. First, the units for projections that were used--the hydrographic subunits--do not necessarily conform to service areas. The second problem concerns the allocation of projected population to a service area within a county in situations where one section of the county is growing at a rate that is substantially different from another section of the county.

Next year, in its program, ABAG will work closely with local agencies to resolve differing views with sewerage agencies which have their own projected rates of

population growth. If there is disagreement with projections that have been developed, the local entities would be expected to supply their own trends and substantiation for those trends.

Jim Giannopoulos, State Water Resources Control Board

To maintain consistency throughout the State and the 16 Planning Basins, a single projection series was developed which is referred to as "Baseline". This Baseline is identical to the Department of Finance D-150 series published in December, 1971.

The Association of Bay Area Governments expressed a great interest in assisting the basin planning program and was selected to provide the demographic inputs to the Basin Plan. The reasons for selecting ABAG should be noted: ABAG has an adopted land use plan; ABAG is the recognized areawide planning organization of the Bay Area; and ABAG is a regional planning agency which can provide local response. Population and land use are critical issues in the Bay Area, and ABAG has a keen understanding of these issues. In addition, the State obtained more than its money's worth by using ABAG, due to matching federal funds.

In November, 1972, a management memorandum was distributed to all the basin contractors in the State stating that the basin plans for water quality control shall be influenced by air quality considerations. In critical air basin areas as designated by the State Air Resources Board, facilities for water quality control must be planned on the basis of series E-0 projections. The five southern counties of the region (San Francisco, San Mateo, Santa Clara, Alameda and Contra Costa) were so designated. Although ABAG did have an E-0 series projection, it did not correspond to the Department of Finance series. ABAG started their "E" fertility rates in 1980; whereas the Department of Finance figures are based on a 1970 starting point. Because of this discrepancy, and because of the time required to make the adjustment, the

State Board requested the Basin Contractor's own consultant on demography, Herman D. Ruth and Associates of Berkeley, to take ABAG's figures and prepare a report on population and growth for our basin planning program.

Ruth reviewed the ABAG data and found a number of aberrations worthy of closer examination. Subsequently, the baseline populations in fourteen of the hydrographic subunits were modified or adjusted. As a result of this effort, two sets of projections were to be used for basin planning. ABAG's D-150 baseline as adjusted by Herman Ruth and Associates was to be used in four northern counties and the Herman Ruth-developed E-0 projections were to be used in five southern counties.

The State Board's grant regulations require using Department of Finance projections on a county basis for grant allocation. Unfortunately, the ABAG figures do not conform to the Department of Finance figures on a county-by-county basis, since the ABAG data on population and employment are allocated throughout the region as a whole. They do, however, agree with the Department of Finance nine-county total.

To maintain consistency between planning and the regulation of grants, the State Board staff revised the hydrographic subunits' distribution so that the county totals now correspond to those of the Department of Finance. These county totals have been disaggregated or distributed within the respective counties according to the relative proportion of the ABAG projections as modified by Herman Ruth. These figures are in Appendix III. "Series D" projections will be used for the four northern counties only and the Series E-0 will be used for the southern five counties. Facilities for recommended alternatives in the Basin Plan will be planned and sized for these projections. All alternative facilities systems will be tested for sensitivity in a broader range of projections, however.

In local and/or regional areas where a publicly accepted policy of controlled growth has been established, the water quality facilities shall be planned for the

accepted local or regional projection, except that facilities shall be planned for projections no lower than Series E-0.

Gary Morris, State Water Resources Control Board

A summary--Appendix IV-Table 3--was compiled a few months ago to demonstrate grant funding limitations. The table shows project needs versus funds available for fiscal years 1972-73, 1973-74 and 1974-75. The number of Group I projects were: 179 for 1972-73, 231 for 1973-74, and 135 for 1974-75. Their estimated eligible project costs would be \$669 million for 1972-73, \$771 million for 1973-74 and \$980 million for 1974-75, for a total of \$2.4 billion. Total available project funds (assuming \$4 billion available nationwide and 10% of that available for California), based on 87-1/2 percent state and federal funding, is \$1.176 billion. This results in a deficit in Group I projects of \$408 million for 1972-73, \$379 million for 1973-74 and \$458 million for 1974-75. With this deficit and very critical needs, the State Board had to develop a system to allocate the limited funds and still attempt to improve water quality.

In addition, an air quality program was initiated with the State Air Resources Board and Environmental Protection Agency exerting strong influence because of concern for the ambient air quality in certain critical areas. The State Board had to consider the Environmental Protection Agency guidelines prohibiting funding any capacity beyond E-0 population levels. As a result of this influence and the need for a means for spreading limited funds, the State Board developed regulations that would be responsible to these constraints and still be able to solve the immediate water quality problems.

The result was that instead of allocating the limited funds to a relatively small number of projects with high eligible capacity, more projects would receive funds but at a relatively lower level of eligible capacity. The principal implication

of this approach was that local agencies would have to pay for "ineligible" or "excess" capacity in their projects, that is, capacity beyond that designated by the State Board grant regulations.

Section 2133 of the new regulations adopted by the State Board provides for these funding limitations. Treatment plants would be eligible for grants only for that portion of capacity which would handle the projected population ten years after the start of construction. For interceptors, the capacity limit is 20 years, so as not to foreclose on regionalization. These population projections shall be based on the most current Department of Finance county-wide projections, using E-0 county totals in critical air basins and D-150 county totals in the non-critical air basins. Disaggregation of these totals to service areas will be accomplished by the State Board's Division of Planning and Research. Eligible project flows shall not include excessive infiltration/inflow.

Estimated per capita flow for future development shall not exceed present per capita flow or 100 gallons per day, whichever is less. This includes all associated commercial flow ordinary to the support of an average community. No allowance is to be made for any increase in industrial flow. Headworks, control buildings and other structures which cannot be easily expanded and major in-plant piping for reasonable expansion are not subject to these capacity limitations.

Where the planned capacity of treatment works exceeds the capacity limits set forth by the regulations, the allocation of eligible project costs shall be made on a pro-rata basis. This means that the eligible project cost is equal to the total project cost times the ratio of eligible capacity divided by total capacity. One exception to this is that the eligible project cost shall not be less than the cost of facilities to serve total needs existing at the time of construction.

George Billingsley, State Water Resources Control Board

The county population totals are disaggregated down to the service area populations. In the disaggregation process, the growth rate for the hydrographic subunit, established by ABAG and Herman Ruth, is applied to the service area located within the hydrographic subunit. This figure is then adjusted so it will be compatible with the Department of Finance total for the county. State Board regulations require the use of Department of Finance county totals that they have projected. The adjustment is necessary since the Department of Finance and ABAG projected differently and have individual county totals which are different, even though the nine-county totals for both agencies are similar.

Summary of Discussion by Group

Andy Sabhlok, Associated Homebuilders of the Greater East Bay--How are the conflicts in population projections and disaggregation being resolved? State representative--Projections of service areas are determined by the State Board's Division of Planning and Research and approved by the areawide planning organization designated by the State Office of Planning and Research. There is no formal designation of such an agency at this time. Discussions between the State and the Association of Bay Area Governments on population are continuing on an informal basis.

Herman Cauldey, City and County of San Francisco-- How should dischargers go about designing and funding above the limits set by these population projections? State representative--Any local service agency or municipality could design to any level of capacity or size they wished, but the local authority would be paying for that excess capacity. Any capacity beyond the limits set by the D-150 (in non-critical air basins) or E-0 (in critical air basins) projections would be on a pro-rata, rather than incremental, cost basis.

Dan Murphy, Bay Area Sewage Services Agency--The State Water Resources Control Board seems to be implementing policies of the Environmental Protection Agency and the State Air Resources Board before these are officially adopted by these agencies. Has the State Board made a vigorous effort to insist that these two adopt their own policies before they require the State Water Resources Control Board to implement them? State representative-- The State Board is not really implementing the Environmental Protection Agency and Air Resources Board programs. The State Board regulations are subject to public hearings.

Warren Nute, Consulting Engineer--Why has unrealistic growth been proposed for the Benicia area in the ABAG Series 1 projections? ABAG representative--Much growth was indicated for this area because model parameters for growth were very favorable (available open land, proximity to employment, good transportation). As other adjacent areas had very low residential densities (and hence, "filled up"), it became necessary for the model to locate additional areas to accommodate the population; and Benicia was one because of the favorable parameters. Series 2 should provide a more reasonable growth rate since it used a high-density factor for residential development, so that there will not be as much need to develop new lands. Also Series 2 multipliers will allow ABAG to adjust their projections to bring them more in tune with local conditions.

Ed Weiss, Union Sanitary District--What is the relationship between boundaries and hydrographic subunits (HSU)? State representative--HSU's are not in many cases directly consistent with existing or projected service areas. The HSU's were identified and delineated by the State and the Basin Contractor for the Basin Plan. In the grant program, HSU projections are adjusted to conform to service areas.

Dave Adams, Bay Area Sewage Services Agency--How is ABAG going to modify its Series 2 projections based on local input and how would the information be used by the State after ABAG revisions? ABAG representative--This would be done by talking

with those local officials and agencies responsible for determining growth policies. However, this could take from one to three years since, in many cases, no growth policy has as yet been established at a local level.

The State agencies are tied to the Department of Finance population projections for planning. Ultimately, these ABAG revisions, which would be based on what the local areas are actually planning, would have a greater influence on the Department of Finance projections. In time, the two projections would become virtually the same.

Nat Daniels, Union Sanitary District--How did the State arrive at figures which show a projected 1977 population in the District which is less than that in existence in 1973? State representative--One reason for this is that the E-0 projection is based on 1970 growth since the projection was determined. Another reason is that the E-0 projection is a straight-line projection, which would give good results in the long-term, but is subject to near-term anomalies.

Joel Gustafson, BASSA Technical Advisory Committee--How can multipliers be used which are based on biased information from local people? ABAG representative--Any numbers generated as a result of these "fudge factors" would be subject to modification based on official planning policies adopted by local entities. The ABAG General Assembly will be presented with a three-year program to aid counties in developing growth policies.

Don Hemovich, Bay Area Sewage Services Agency--How will revised population figures be used? State representative--The problem is very complicated because the Basin Plans are being finalized, and they need a definitive set of data. Furthermore, the grant program must be compatible with the Basin Plans. There is also the problem that the State is required to use individual county Department of Finance projections which are different than the ABAG individual county figures, even though the totals of the two for the nine-county area are identical. In the grant program, there is a provision to use updated information on disaggregations based on local input and information.

APPENDIX I

CONTINUING EVALUATION OF REGIONAL GROWTH POLICY CHOICES

Note: Figure 1 is extracted from Population, Employment and Land Use Projections, San Francisco Bay Region 1970-2000, Summary and Highlights, Series 1 Report, Association of Bay Area Governments, California Division of Highways and Metropolitan Transportation Commission, May, 1973, which was developed for the Water Quality Management Plan for Basin 2. It shows the progression of stages in the development and evaluation of alternative regional growth projections to indicate that additional factors will be considered in Series 2 and beyond.

FIGURE 1

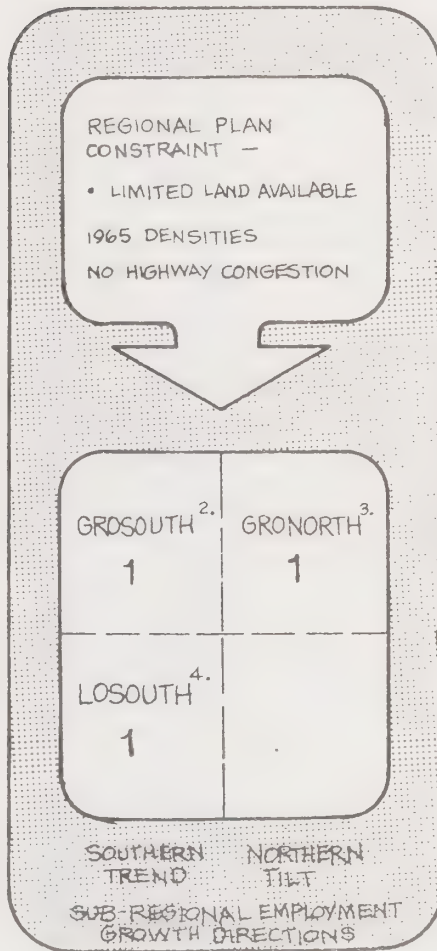
CONTINUING EVALUATION OF REGIONAL GROWTH POLICY CHOICES

(TECHNICAL PROCESS)

SERIES 1

LIMITED POLICIES

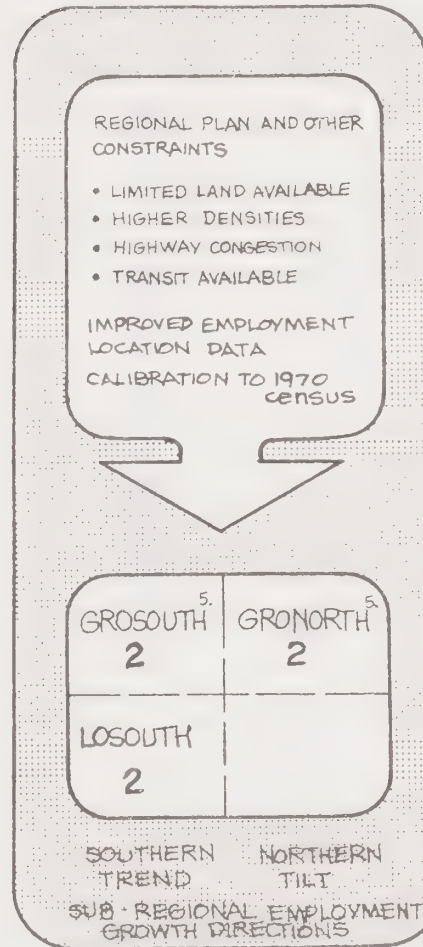
(JAN '73 FOR STATE WATER RESOURCES CONTROL BOARD)



SERIES 2

ADDITIONAL LAND USE / TRANSIT POLICIES

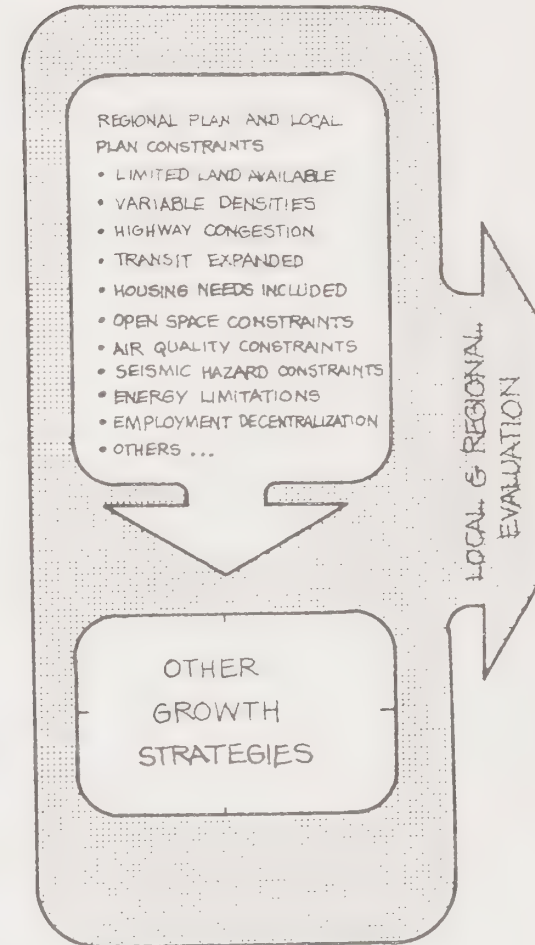
(MAY '73 FOR MTC - REGIONAL TRANSIT TRAVEL PROJECTIONS PROJECT)



SERIES 3,4...

MULTI-AGENCY POLICIES

(IN CONCERT WITH LOCAL AND OTHER REGIONAL PROGRAMS)



1. CALIFORNIA DEPARTMENT OF FINANCE USES A NUMBER OF ALTERNATIVE GROWTH RATES FOR THE STATE. D-150 REFERS TO CENSUS BUREAU SERIES D FERTILITY (2.45 BIRTHS/WOMAN/LIFETIME), 150,000 ANNUAL STATE NET MIGRATION, AND CURRENT MORTALITY RATES. E-0 REFERS TO CENSUS BUREAU SERIES E FERTILITY (2.11 BIRTHS/WOMAN/LIFETIME), ZERO STATE NET MIGRATION, AND CURRENT MORTALITY RATES.
2. PREVIOUSLY REFERRED TO AS "BASELINE"
3. PREVIOUSLY REFERRED TO AS "NORTHTILT"
4. PREVIOUSLY REFERRED TO AS "LO"
5. EITHER GRO SOUTH OR GRO NORTH WILL BE EVALUATED IN SERIES 2

TYPES OF ALLOCATION ASSUMPTIONS CONSIDERED

CALIF. DEPT. OF FINANCE STATE GROWTH ALTERNATIVES. REGIONAL GROWTH TOTALS

BASELINE REGIONAL GROWTH RATE (D-150)¹.

LOW REGIONAL GROWTH RATE (E-0)¹.

APPENDIX II

ASSOCIATION OF BAY AREA GOVERNMENTS SERIES 2 POPULATION PROJECTIONS

Note: Table 1, as presented, has undergone little local review. Such a review is being undertaken to refine these projections in Series 3. Series 2 nine-county totals agree with State Department of Finance nine-county totals, but do not necessarily agree on a county-by-county basis. The accompanying text, "Discretion in Use of Projections", was developed by the ABAG staff and serves to amplify the role of the Series 2 data in the ongoing projection process.

DISCRETION IN USE OF PROJECTIONS

The ABAG/MTC Joint Land Use Transportation Planning Program staff has initiated a continuing program for preparing employment, population and land use projections for the San Francisco Bay Region. Such projections represent current growth alternatives, but they do not necessarily represent a desired future.

The release of these data is part of a technical process intended to develop a common data base for the San Francisco Bay Region. These data are provided to begin dialogue on the methodology, assumptions and analysis underlying the projections in addition to the levels and distribution of the growth at the regional and local levels.

The projections by the Joint Program have been developed in a "successive approximation" process with initial stages or output as follows:

1. Employment projections to the year 2000 by industry and county for the Bay Region.
2. Population, employment and land use projections to the year 2000 by 50 hydrographic subunits within the Region as specified by the State Department of Water Resources (Series 1).
3. Population, employment, housing and land use projections to the year 2000 by subcounty areas for the Bay Region (Series 2).

While the Joint Program encourages the use of these projections by analysts and planners throughout the Region, it is important to establish the dimensions of data reliability and usability. These projections are part of an ongoing process that continually evaluates and refines them in response to improved predictive techniques, changing regional and local policies, and feedback from the review process. Consequently, the data are current only for the time span between iterations of the process.

The projection process operates to meet the specific needs of comprehensive regional land use and transportation planning. As such, it generates data having specific qualities of scale and definition. These may not meet the needs of other planning applications. The user should be familiar with the zonal configurations, planning assumptions and definitions of model variables implicit in the projections before attempting to use them.

Associated with this last point is one pertaining to the degree of accuracy and precision one should expect in the products of the projection system. The system is simple in its methodology, coarse in its grain of analysis and approximate in its simulation capabilities. The user should not place more reliance on the data than these characteristics of operation can support.

The users of these projections are also cautioned against making too literal an interpretation of the data. The reliability of the projections decreases rapidly as one moves away from the "known" conditions of the base year. This, combined with the unavailability of solid comparative data from external sources for the year 2000, makes Series Two data for that year of questionable utility in a planning application. They are included in the data package, however, to complete the comparative framework of the Series 1-Series 2 formation.

The projections reflect the broad framework provided by the Regional Plan: 1970-1990 as approved in 1970. Since that time, the Region has been confronted with an almost unparalleled set of circumstances that promise to substantially affect its future. Concerns for environmental quality, limited growth and innovative options to conventional planning solutions will undoubtedly result in new and different policies at the regional and local levels. The implications of these policies, when incorporated into the projection process, may result in different levels and configurations of growth. For now, however, it is important to recognize that the Series 2

projections represent current conditions and expectations about the Regions's future.

As part of an ongoing process, the projections will be modified on the basis of a review process, refinement of available information and the assessment of changing conditions. Consequently, they should be used with discretion.

COMPARISON OF STATE, SERIES 1, AND SERIES 2
POPULATION PROJECTIONS: 1980, 1990 and 2000 by HSU
(Thousands)

TABLE 1

COUNTY	HSU	ZONE NAME	1980			1990			2000		
			STATE	SERIES 1	SERIES 2	STATE	SERIES 1	SERIES 2	STATE	SERIES 1	SERIES 2
San Francisco	1	San Francisco	712	718	721	706	721	730	689	724	737
COUNTY TOTAL			712	718	721	706	721	730	689	724	737
Marin	2	Bolinas	16	16	17	18	18	18	19	19	19
	3	Central Marin	109	101	102	128	121	113	151	123	125
	4	North Marin	101	91	91	148	168	117	191	202	147
	5	South Marin	31	29	27	37	38	31	38	39	36
	6	Tomaes Bay	4	4	4	5	5	5	5	5	6
	7	Americano-Marin	0	0	0	0	0	0	0	0	0
COUNTY TOTAL			261	241	241	336	350	284	404	388	333
San Mateo	8	Guadalupe Valley	10	18	10	10	9	12	10	23	14
	9	Half Moon Bay	10	15	12	10	24	16	10	32	20
	10	Mid Peninsula	156	192	165	157	207	187	157	211	209
	11	North San Mateo	80	92	84	81	95	93	78	98	101
	12	Pacifica	37	41	39	40	55	42	40	61	45
	13	Pescadero	3	3	3	3	4	3	3	4	3
	14	South County-Butano	0	0	0	0	0	0	0	0	0
	15	South San Francisco	128	141	140	130	144	149	127	144	156
	16	South San Mateo	148	165	155	151	183	164	149	190	170
COUNTY TOTAL			572	666	608	582	731	666	574	763	718
Sonoma	17	Sonoma	30	27	30	37	35	37	56	37	43
	18	Petaluma	55	48	48	76	114	69	89	146	90
	19	N.W. Sonoma-Gualala	0	0	0	0	0	0	0	0	0
	20	Sonoma Coast	2	2	2	2	2	2	2	2	2
	21	Russian River	37	36	40	41	47	49	47	53	57
	22	Americano	3	3	3	3	3	3	3	3	3
	23	Santa Rosa	149	137	140	212	293	187	284	370	234
COUNTY TOTAL			276	252	263	371	494	347	481	611	429

COMPARISON OF STATE, SERIES 1, AND SERIES 2
POPULATION PROJECTIONS: 1980, 1990 and 2000 by HSU
(Thousands)

TABLE 1

COUNTY	HSU	ZONE NAME	1980			1990			2000		
			STATE	SERIES 1	SERIES 2	STATE	SERIES 1	SERIES 2	STATE	SERIES 1	SERIES 2
San Francisco	1	San Francisco	712	718	721	706	721	730	689	724	737
COUNTY TOTAL			712	718	721	706	721	730	689	724	737
Marin	2	Bolinas	16	16	17	18	18	18	19	19	19
	3	Central Marin	109	101	102	128	121	113	151	123	125
	4	North Marin	101	91	91	148	168	117	191	202	147
	5	South Marin	31	29	27	37	38	31	38	39	36
	6	Tomaes Bay	4	4	4	5	5	5	5	5	6
	7	Americano-Marin	0	0	0	0	0	0	0	0	0
COUNTY TOTAL			261	241	241	336	350	284	404	388	333
San Mateo	8	Guadalupe Valley	10	18	10	10	9	12	10	23	14
	9	Half Moon Bay	10	15	12	10	24	16	10	32	20
	10	Mid Peninsula	156	192	165	157	207	187	157	211	209
	11	North San Mateo	80	92	84	81	95	93	78	98	101
	12	Pacifica	37	41	39	40	55	42	40	61	45
	13	Pescadero	3	3	3	3	4	3	3	4	3
	14	South County-Butano	0	0	0	0	0	0	0	0	0
	15	South San Francisco	128	141	140	130	144	149	127	144	156
	16	South San Mateo	148	165	155	151	183	164	149	190	170
COUNTY TOTAL			572	666	608	582	731	666	574	763	718
Sonoma	17	Sonoma	30	27	30	37	35	37	56	37	43
	18	Petaluma	55	48	48	76	114	69	89	146	90
	19	N.W. Sonoma-Gualala	0	0	0	0	0	0	0	0	0
	20	Sonoma Coast	2	2	2	2	2	2	2	2	2
	21	Russian River	37	36	40	41	47	49	47	53	57
	22	Americano	3	3	3	3	3	3	3	3	3
	23	Santa Rosa	149	137	140	212	293	187	284	370	234
COUNTY TOTAL			276	252	263	371	494	347	481	611	429

COUNTY	HSU	ZONE NAME	STATE	SERIES 1	SERIES 2	STATE	SERIES 1	SERIES 2	STATE	SERIES 1	SERIES 2
Napa	24	Lake Curry	0	0	0	0	0	0	0	0	0
	25	Napa Valley	102	110	98	146	187	129	191	235	167
	26	Berryessa	1	1	1	1	1	1	1	2	2
	COUNTY TOTAL		103	111	99	147	189	130	192	236	169
Solano	27	Benicia	14	14	12	20	20	15	40	103	19
	28	Fairfield, Suisun	66	65	75	101	112	97	171	218	117
	29	Vallejo	88	87	95	109	94	115	123	95	131
	30	Dixon	9	9	9	15	15	10	15	15	11
	31	Vacaville	32	32	40	54	53	58	67	69	66
	32	S.E. Solano	4	4	4	4	4	4	4	4	4
COUNTY TOTAL			213	211	235	303	298	299	420	504	348
Contra Costa	33	Cent. Contra Costa	356	421	370	383	471	435	416	520	449
	36	East Contra Costa	14	15	14	19	19	14	24	24	15
	37	Pittsburg, Antioch	74	87	80	106	121	101	111	132	118
	38	Rodeo	26	33	26	31	48	33	37	64	39
	39	Tassajara	0	0	0	0	0	0	0	0	0
	40	West Contra Costa	180	188	185	192	191	196	203	191	202
	41	Bethel	1	1	1	1	1	1	1	1	1
COUNTY TOTAL			651	745	676	732	851	780	792	932	824
Santa Clara	42	Mt. Hamilton	1	1	1	1	1	2	1	1	3
	43	Palo Alto	171	168	172	233	192	177	250	198	181
	44	S. Santa Clara	35	35	34	53	41	44	132	95	53
	45	Pacheco	1	1	1	1	1	2	1	1	3
	46	San Jose	1,099	1,103	1,032	1,274	1,250	1,183	1,385	1,376	1,283
COUNTY TOTAL			1,307	1,307	1,240	1,562	1,483	1,408	1,769	1,669	1,523
Alameda	34	Livermore	52	64	53	70	76	67	76	79	79
	35	Pleasanton	54	86	52	74	183	71	78	221	89
	47	Central Alameda	288	298	297	312	300	320	341	329	336
	48	East Bay	585	590	595	589	593	616	593	596	631
	49	Union City	169	194	183	176	201	228	186	207	260
	50	East Alameda	0	0	0	0	0	0	0	0	0
COUNTY TOTAL			1,148	1,231	1,180	1,221	1,353	1,302	1,274	1,433	1,395
BAY AREA TOTALS			5,243	5,482	5,263	5,960	6,470	5,946	6,595	7,260	6,476

NOTE: State projections and Series 2 projections for 1980, 1990, and 2000, by HSU and county, are based on DOF Series D-150 for Marin, Sonoma, Solano and Napa counties; and on DOF Series E-0 for San Francisco, Alameda, San Mateo, Santa Clara and Contra Costa counties. Series 1 projections by HSU and county for 1980 are based on DOF Series D-150 for all HSU's and all counties. For 1990 and 2000, Series 1 projections are based on DOF Series D-150 for Marin, Sonoma, Solano, and Napa counties and on a growth rate approximating the DOF Series E-0 rate between 1980 and 2000 for the remaining five counties of the Bay Area.

APPENDIX III

POPULATION PROJECTIONS BEING USED BY STATE BOARD FOR BASIN PLANNING AND CONSTRUCTION GRANT CAPACITY

Table 2 - ABAG Series 2 Adjusted to Department of Finance County Totals

Figure 2 - Nine-County Region Hydrographic Subunits

Note: Because of critical air basin concerns, the E-0 series is used for the counties of San Francisco, San Mateo, Santa Clara, Alameda and Contra Costa. The D-150 series is used for the counties of Marin, Sonoma, Napa and Solano. Disaggregation of subunits to service units is accomplished by the State Board's Division of Planning and Research.

COUNTY	HSU	ZONE NAME	1970	1980	1990	2000
SAN FRANCISCO *	1	SAN FRANCISCO	* 714	712	706	669
TOTALS FOR COUNTY			714	712	706	669
MARIN	2	BOLINAS	15	18	20	21
MARIN	3	CENTRAL MARIN	93	108	127	143
MARIN	4	NORTH MARIN	71	103	147	189
MARIN	5	SOUTH MARIN	24	29	36	43
MARIN	6	TOMALES BAY	4	4	6	7
MARIN	7	AMERICANO-MARIN	0	0	0	0
TOTALS FOR COUNTY			207	262	336	403
SAN MATEO *	8	GUADALUPE VALLEY	* 9	9	9	9
SAN MATEO *	9	HALF MOON BAY	* 10	10	11	10
SAN MATEO *	10	MID PENINSULA	* 150	154	158	155
SAN MATEO *	11	NORTH SAN MATEO	* 77	79	81	80
SAN MATEO *	12	PACIFICA	* 37	37	38	37
SAN MATEO *	13	PESCADERO	* 2	3	3	3
SAN MATEO *	14	SOUTH COUNTY-BUTANO*	0	0	0	0
SAN MATEO *	15	SOUTH SAN FRANCISCO*	126	130	132	131
SAN MATEO *	16	SOUTH SAN MATEO	* 145	148	150	149
TOTALS FOR COUNTY			556	570	582	574
SONOMA	17	SONOMA	24	31	39	47
SONOMA	18	PETALUMA	34	51	75	103
SONOMA	19	N.W. SONOMA-GUALALA	0	0	0	0
SONOMA	20	SONOMA COAST	2	2	2	2
SONOMA	21	RUSSIAN RIVER	35	41	51	62
SONOMA	22	AMERICANO	3	3	3	3
SONOMA	23	SANTA ROSA	108	147	200	263
TOTALS FOR COUNTY			206	275	370	480
NAPA	24	LAKE CURRY	0	0	0	0
NAPA	25	NAPA VALLEY	79	101	146	190
NAPA	26	BERRYESSA	1	1	1	2
TOTALS FOR COUNTY			80	102	147	192

* CRITICAL AIR BASINS ARE E-0, ALL OTHERS ARE D-150

COUNTY	CSU	ZONE NAME	1970	1980	1990	2000
SOLANO	27	BENICIA	10	11	15	25
SOLANO	28	FAIRFIELD, SUISUN	52	67	98	146
SOLANO	29	VALLEJO	73	88	116	154
SOLANO	30	DIXON	8	9	10	12
SOLANO	31	VACAVILLE	26	35	60	79
SOLANO	32	S.E. SOLANO	4	4	4	4

TOTALS FOR COUNTY			173	214	303	420
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CONTRA COSTA	*	33	CENT. CONTRA COSTA	*	296	354	405	424
CONTRA COSTA	*	36	EAST CONTRA COSTA	*	13	14	14	15
CONTRA COSTA	*	37	PITTSBURG, ANTIOCH	*	62	76	93	115
CONTRA COSTA	*	38	RODEO	*	19	24	30	38
CONTRA COSTA	*	39	TASSAJARA	*	0	0	0	0
CONTRA COSTA	*	40	WEST CONTRA COSTA	*	169	182	191	199
CONTRA COSTA	*	41	BETHEL	*	1	1	1	1

TOTALS FOR COUNTY			560	651	734	792
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SANTA CLARA	*	42	MT. HAMILTON	*	1	1	3	4
SANTA CLARA	*	43	PALO ALTO	*	162	177	184	192
SANTA CLARA	*	44	S. SANTA CLARA	*	30	36	51	67
SANTA CLARA	*	45	PACHECO	*	1	1	3	4
SANTA CLARA	*	46	SAN JOSE	*	879	1092	1321	1500

TOTALS FOR COUNTY			1073	1307	1562	1767
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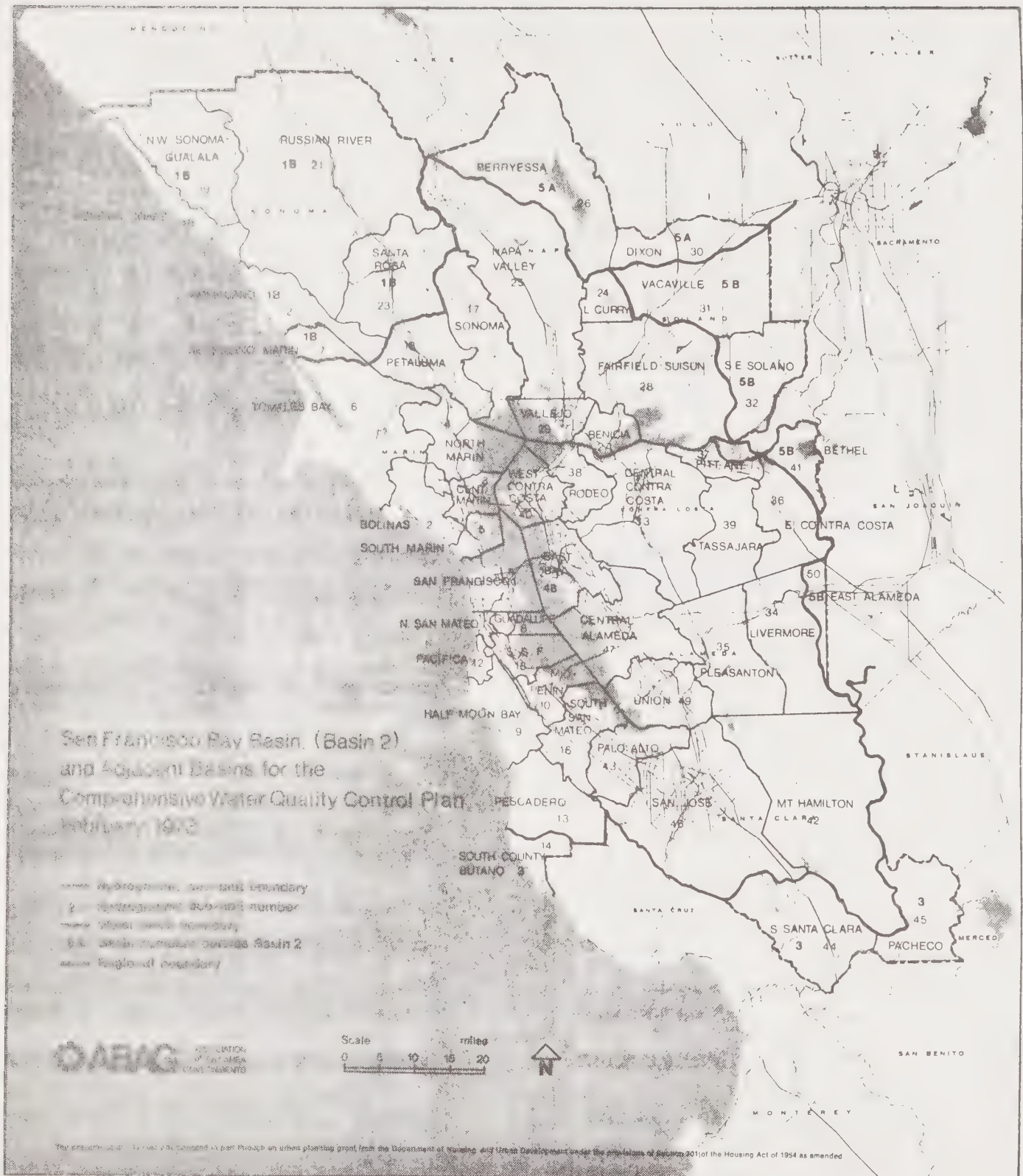
ALAMEDA	*	34	LIVERMORE	*	41	49	57	64
ALAMEDA	*	35	PLEASANTON	*	37	47	59	69
ALAMEDA	*	47	CENTRAL ALAMEDA	*	276	291	305	313
ALAMEDA	*	48	EAST BAY	*	578	591	603	612
ALAMEDA	*	49	UNION CITY	*	144	171	198	215
ALAMEDA	*	50	EAST ALAMEDA	*	0	0	0	0

TOTALS FOR COUNTY			1076	1149	1222	1273
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BAY AREA TOTALS			4645	5242	5962	6590
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* CRITICAL AIR BASINS ARE E-0, ALL OTHERS ARE D-150

NINE-COUNTY REGION HYDROGRAPHIC SUBUNITS



APPENDIX IV

SUMMARY OF MUNICIPAL WASTEWATER TREATMENT PROJECT NEEDS AND AVAILABLE STATE AND FEDERAL GRANT FUNDS FOR FISCAL YEARS 1972-73 THROUGH 1974-75

Note: Data in Table 3 was developed by the State Board's Division of Grants to show the expected Group I project cost deficits based on expected levels of federal funding and Group I project needs.

TABLE 3

**SUMMARY OF MUNICIPAL WASTEWATER TREATMENT PROJECT NEEDS
AND AVAILABLE STATE AND FEDERAL GRANT FUNDS
FOR FISCAL YEARS 1972-1973 THROUGH 1974-75**

FISCAL YEAR	NUMBER OF GROUP I PROJECTS	ESTIMATED ELIGIBLE GROUP I PROJECTS COST	TOTAL AVAILABLE PROJECT FUNDS **	GROUP I PROJECT COST DEFICIT
1972-73	179	\$669,055,482	\$261,300,000	\$407,755,482
1973-74	231	771,334,800	392,000,000	379,334,800
1974-75	135	980,497,600	522,700,000 *	457,797,600
TOTAL	545	\$ 2,420,887,882	\$1,176,000,000	\$1,244,887,882

* ASSURED \$4 BILLION NATIONWIDE FEDERAL FUNDING FOR FISCAL YEAR 1974-75

** INCLUDES 87 1/2 PER CENT STATE AND FEDERAL FUNDING

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